

The Big List of Properties (Chapter 2, Sections 5-7)

Addition Properties $\text{If } a=b \text{ then } a+c=b+c$

If a segment is added to two congruent segments, then the sums are congruent.

If an angle is added to two congruent angles, then the sums are congruent.

If congruent segments are added to congruent segments, then the sums are congruent.

If congruent angles are added to congruent angles, then the sums are congruent.

Examples

If $\overline{AB} \cong \overline{CD}$ then $\overline{AB} + \overline{EF} \cong \overline{CD} + \overline{EF}$

If $\angle A \cong \angle B$ then $\angle A + \angle C \cong \angle B + \angle C$

If $\overline{AB} \cong \overline{CD}$ AND $\overline{EF} \cong \overline{GH}$ then $\overline{AB} + \overline{EF} \cong \overline{CD} + \overline{GH}$

If $\angle A \cong \angle B$ AND $\angle C \cong \angle D$
then $\angle A + \angle C \cong \angle B + \angle D$

Subtraction Properties

If a segment (or angle) is subtracted from congruent segments (or angles), then the differences are congruent.

If $\overline{AB} \cong \overline{CD}$ then $\overline{AB} - \overline{EF} \cong \overline{CD} - \overline{EF}$

If $\angle A \cong \angle B$ then $\angle A - \angle C \cong \angle B - \angle C$

If congruent segments (or angles) are subtracted from congruent segments (or angles), then the differences are congruent.

If $\overline{AB} \cong \overline{CD}$ AND $\overline{EF} \cong \overline{GH}$ then $\overline{AB} - \overline{EF} \cong \overline{CD} - \overline{GH}$

If $\angle A \cong \angle B$ AND $\angle C \cong \angle D$ then $\angle A - \angle C \cong \angle B - \angle D$